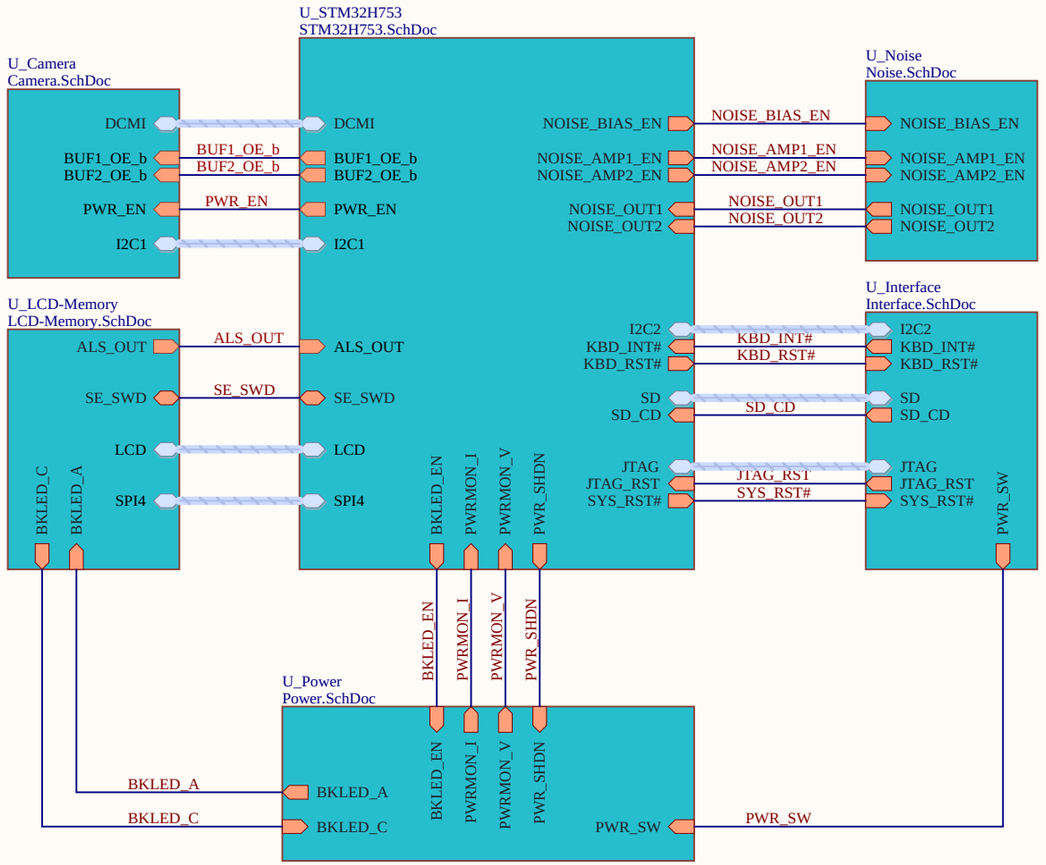
FD-JL-PCB-MB

Table of Contents

Revisions

Rev	Description	Date	Approved
C1	Initial Release for Production	11/09/2020	M. Beach
C2	Changed R25, R27 to 10k: LED Brightness Installed R55 and R56 with 10k: OE Pullups Installed R54, DNI R53: ALS High Gain Changed R61 to 220k: ALS Sensitivity Changed R32 to 215k: 2.8V Supply CDONE --> BUF1_OE_b, CRESET --> BUF2_OE_b	11/22/2020	M. Beach
C3	Added 2.5V VREF for ADC: U20 Removed 32kHz tuning fork pads	12/04/2020	M. Beach
D1	Added +2V8 LDO for camera Added C54: feedback capacitor	12/18/2020	M. Beach
D2	Changed R25 from 10k to 14.3k: Blue LED brigntness Updated P1 PN to specify T&R	2/15/2021	M. Beach
E1	Updated Keypad Footprints Changed R25 from 14.3k to 22k: Blue LED brightness Changed R23 from 20k to 22k: BOM consolidation DNI: U3, C2, C38, R5, R23	4/27/2021	M. Beach

STM32H753



CAMERA HEADER

LIGHT SENSOR

SECURE ELEMENT

LCD

AVALANCHE NOISE SOURCE

KEYPAD

SD CARD

JTAG

POWER / REGULATORS

PCB1 E1

PCB

FD-JL-PCB-MB

LICENCE: CERN-OHL-S v2

Engineer: M. Beach	FOUNDATION	Foundation Devices Inc 6 Liberty Sq #6018 Boston, MA 02109
Designer: M. Beach	Drawing Title: FD-JUL-MB.PrjPcb	
Approved: M. Beach Date: 04/27/2021	Page Title: Title.SchDoc	
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STM32H753

Board Revision

Design Note: Board Revision Ladder
-- 3.0V Supply --
Rev X1: 0V
Rev A5: 0.5V
Rev B4: 1.0V
-- 2.5V VREF+ --
Rev D1/E1: 1.4V

Supply Supervisor

TPS3840DL27DBVR

Design Note:
tD = 618937 * CCT_EXT + 50 µs
tD = 618937 * 1.5E-9F + 50us
tD = 0.978 ms

Fiducials

FID1 FID1X2R | FID2 FID1X2R | FID3 FID1X2R
FID4 FID1X2R | FID5 FID1X2R | FID6 FID1X2R

Mounting Holes

ST1 TH-D2_45 | ST2 TH-D2_45

Decap

C5–C12 100nF

Design Note:
Stabalization for main regulator

C13 2.2uF | C58 2.2uF

STM32H753VIT6

VCC | Reset | Boot Mode | JTAG | OSC | USB | SDMMC | VSS

MISC | TIMx | ADC | USART | SPI | I2C | DCMI

SD_Card

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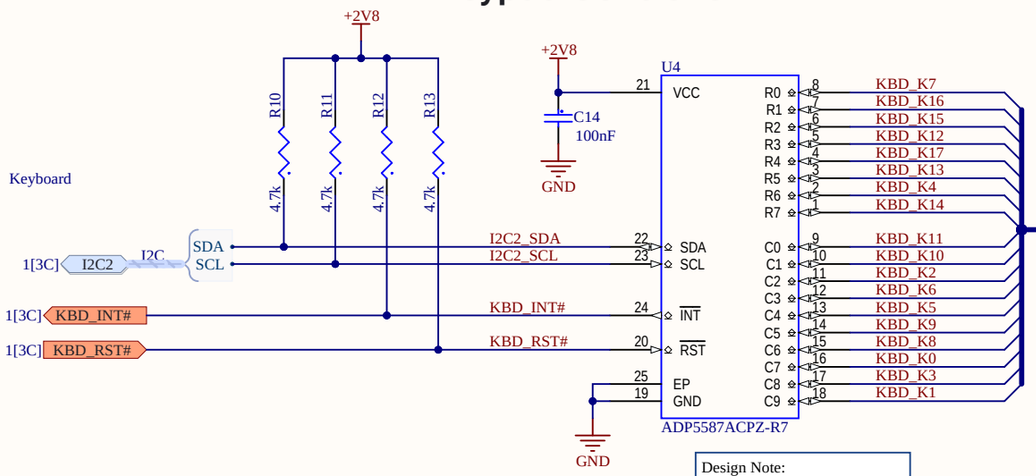
FOUNDATION

Interfaces

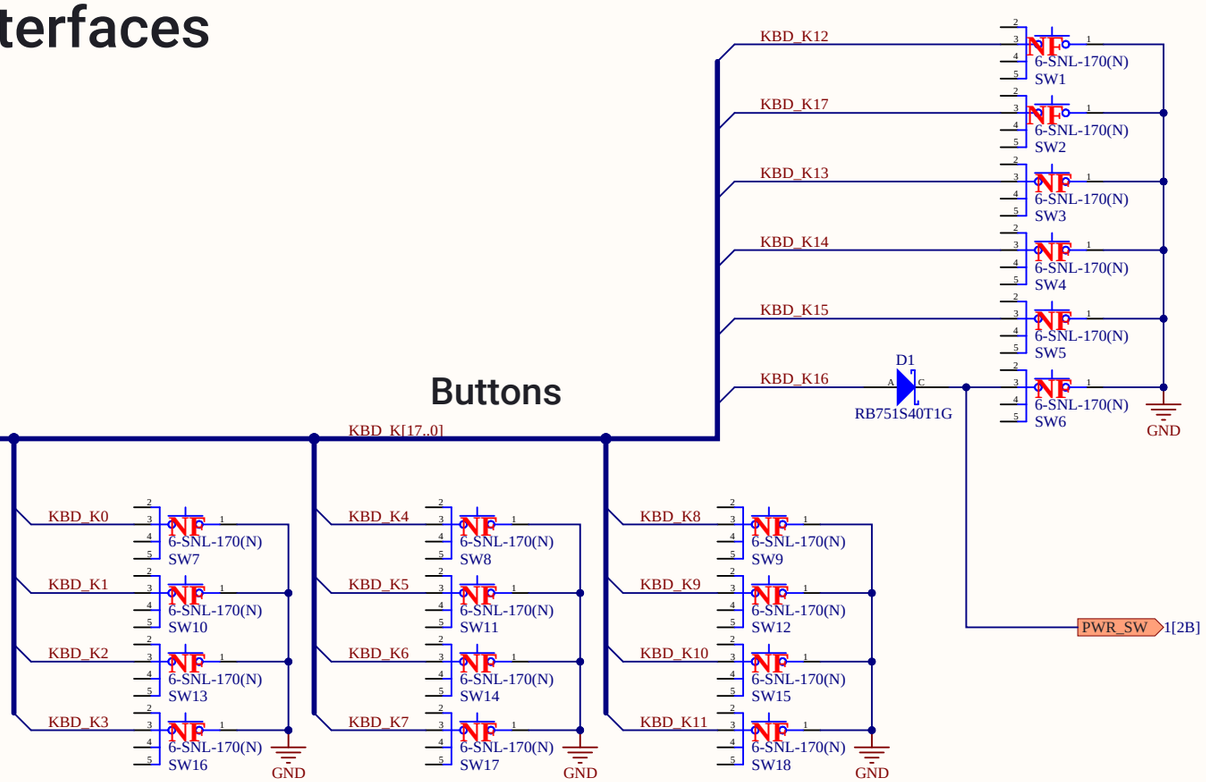
Keypad Controller



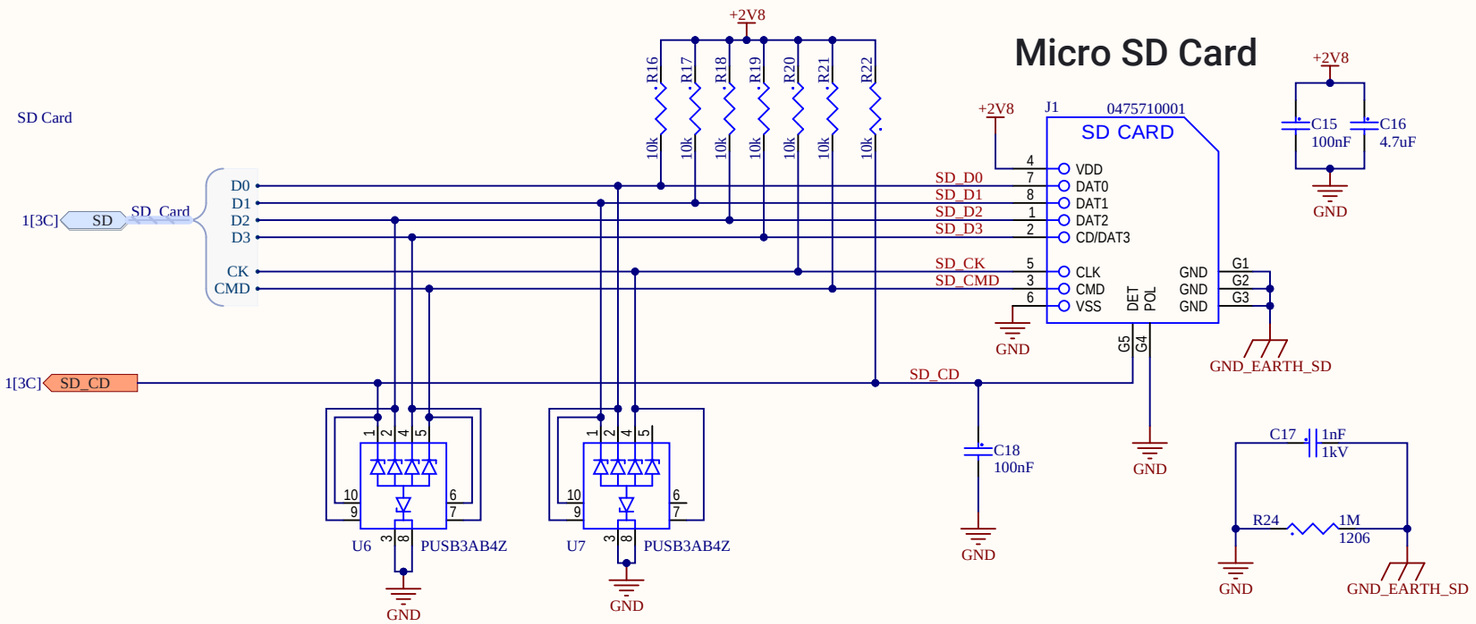
Buttons

Design Note:
Keyboard controller has internal pullups and debouncing.

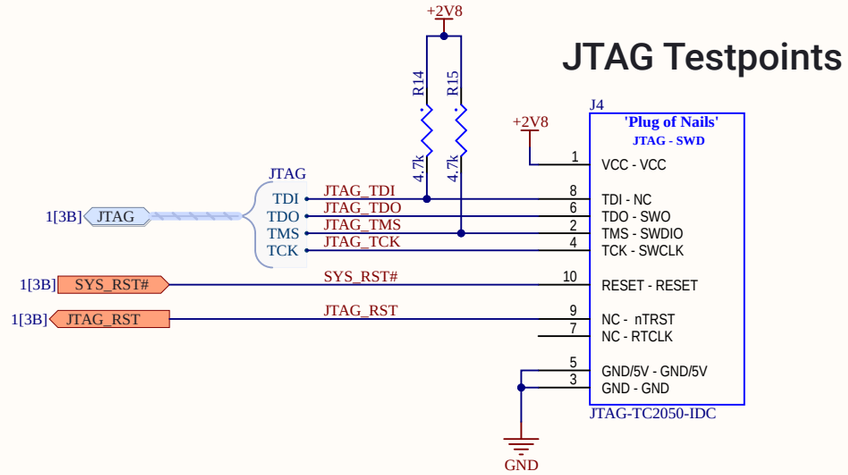
Buttons



Micro SD Card



JTAG Testpoints



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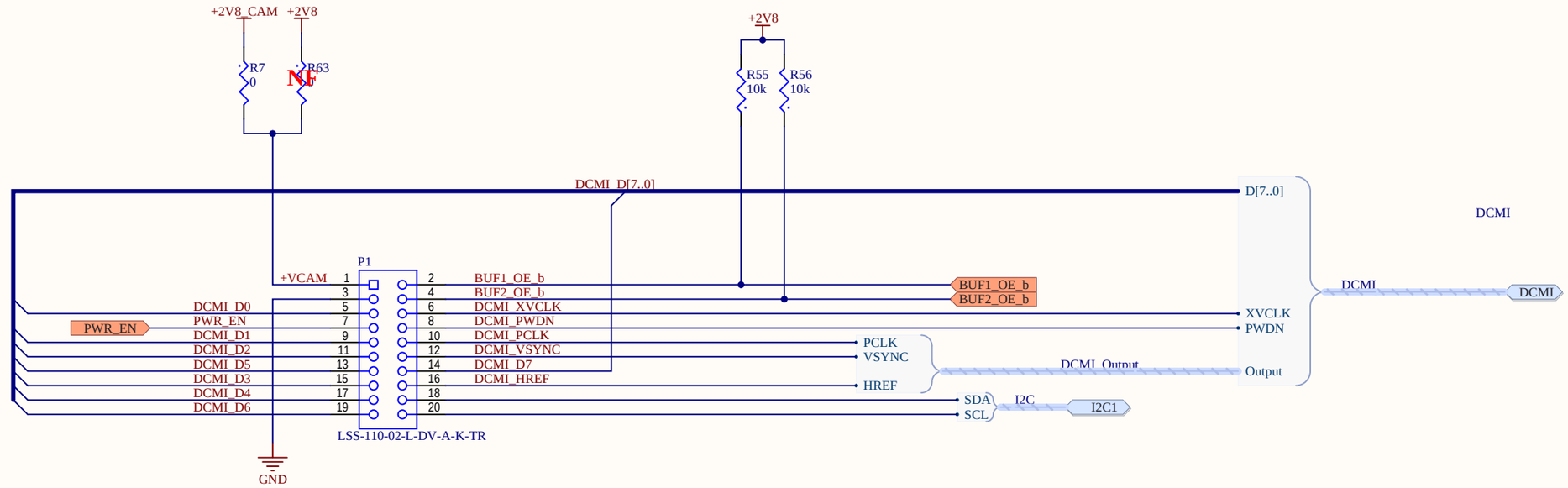
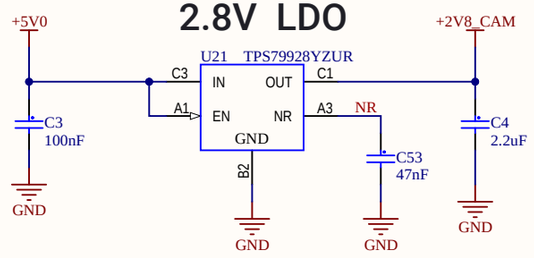
Camera Connector





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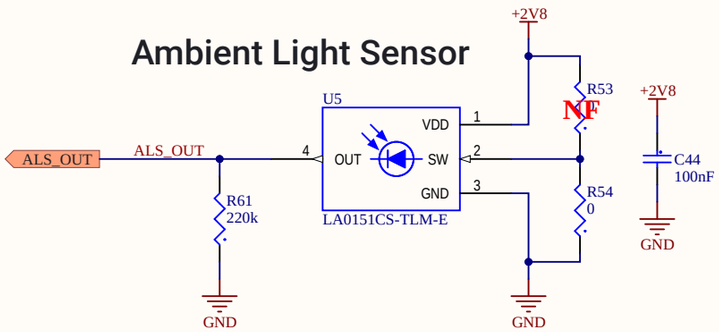
LCD, MEMORY

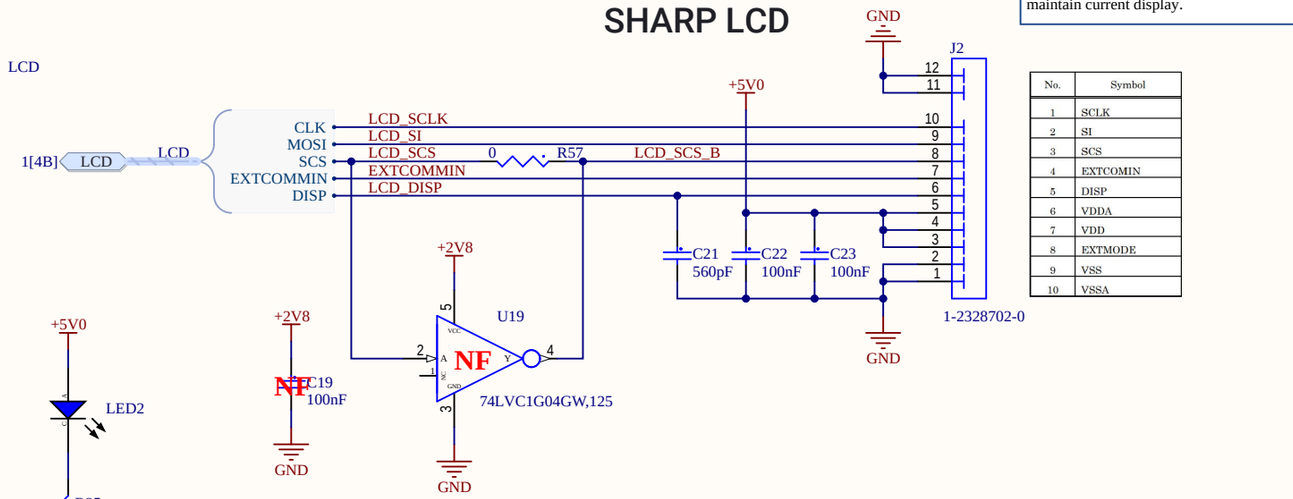
Design Note:
Signal Vih: 2.7V < Vih < 3.3V.
Applies to SCLK, SI, SCS, DISP, EXTCOMIN

Design Note:
Supply EXTCOMIN with a 1HZ pulse to maintain current display.

Ambient Light Sensor

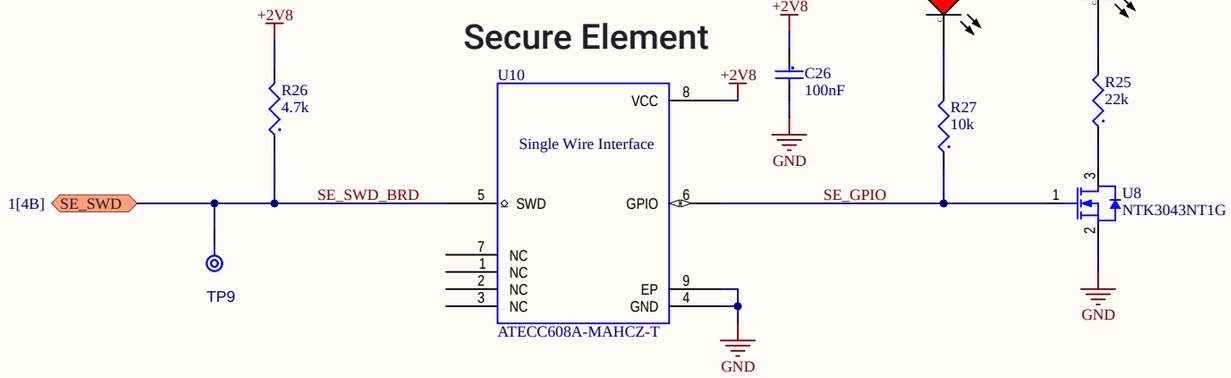


SHARP LCD

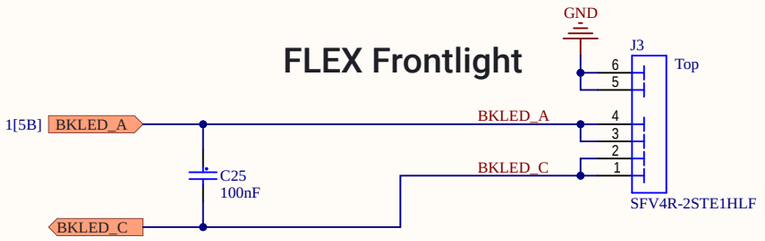


No.	Symbol
1	SCLK
2	SI
3	SCS
4	EXTCOMIN
5	DISP
6	VDDA
7	VDD
8	EXTMODE
9	VSS
10	VSSA

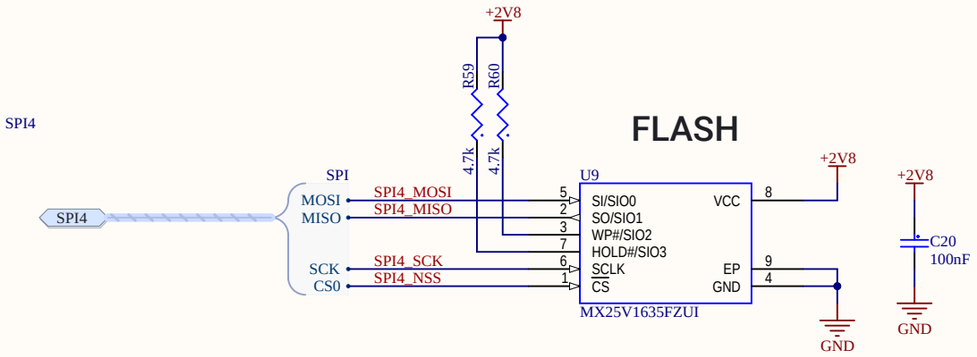
Secure Element



FLEX Frontlight



FLASH



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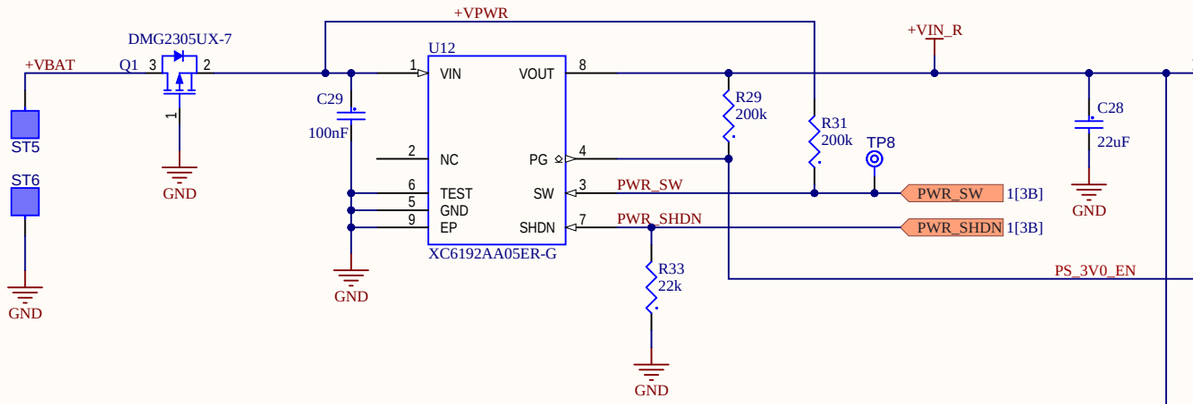
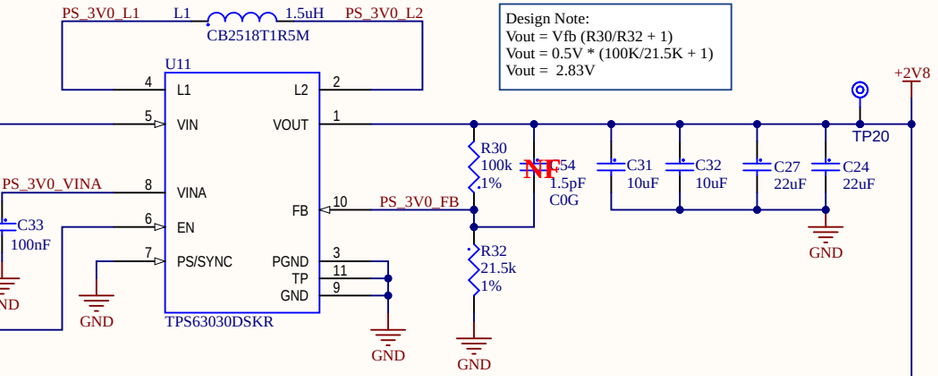
Power Regulators

Reverse Current Protection

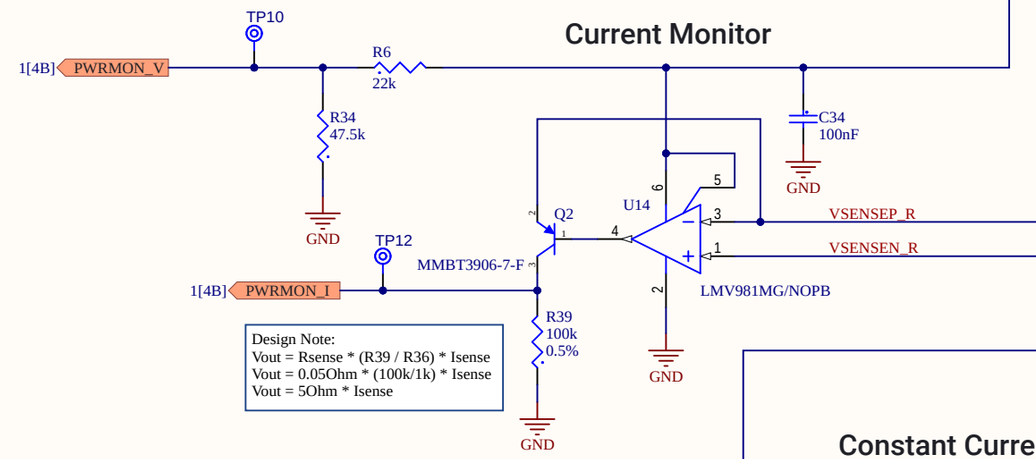
Load Switch



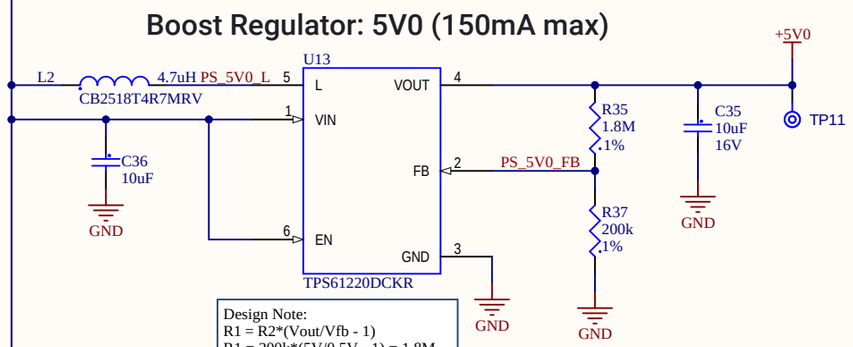
Boost-Buck Regulator: 2V8 (1A max)



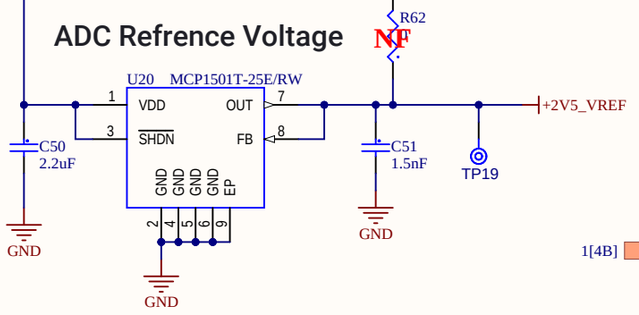
Current Monitor



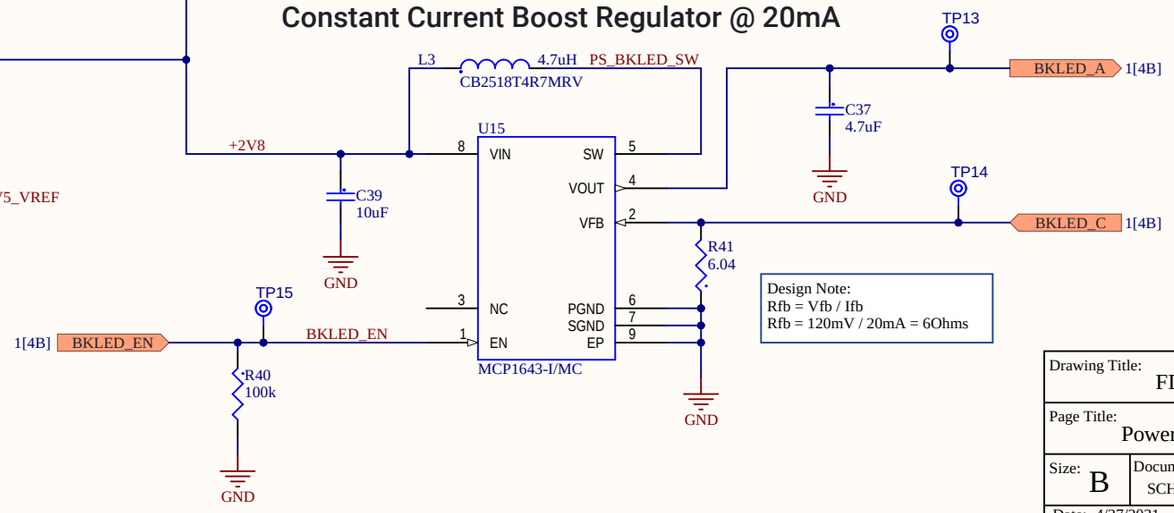
Boost Regulator: 5V0 (150mA max)



ADC Refrence Voltage



Constant Current Boost Regulator @ 20mA



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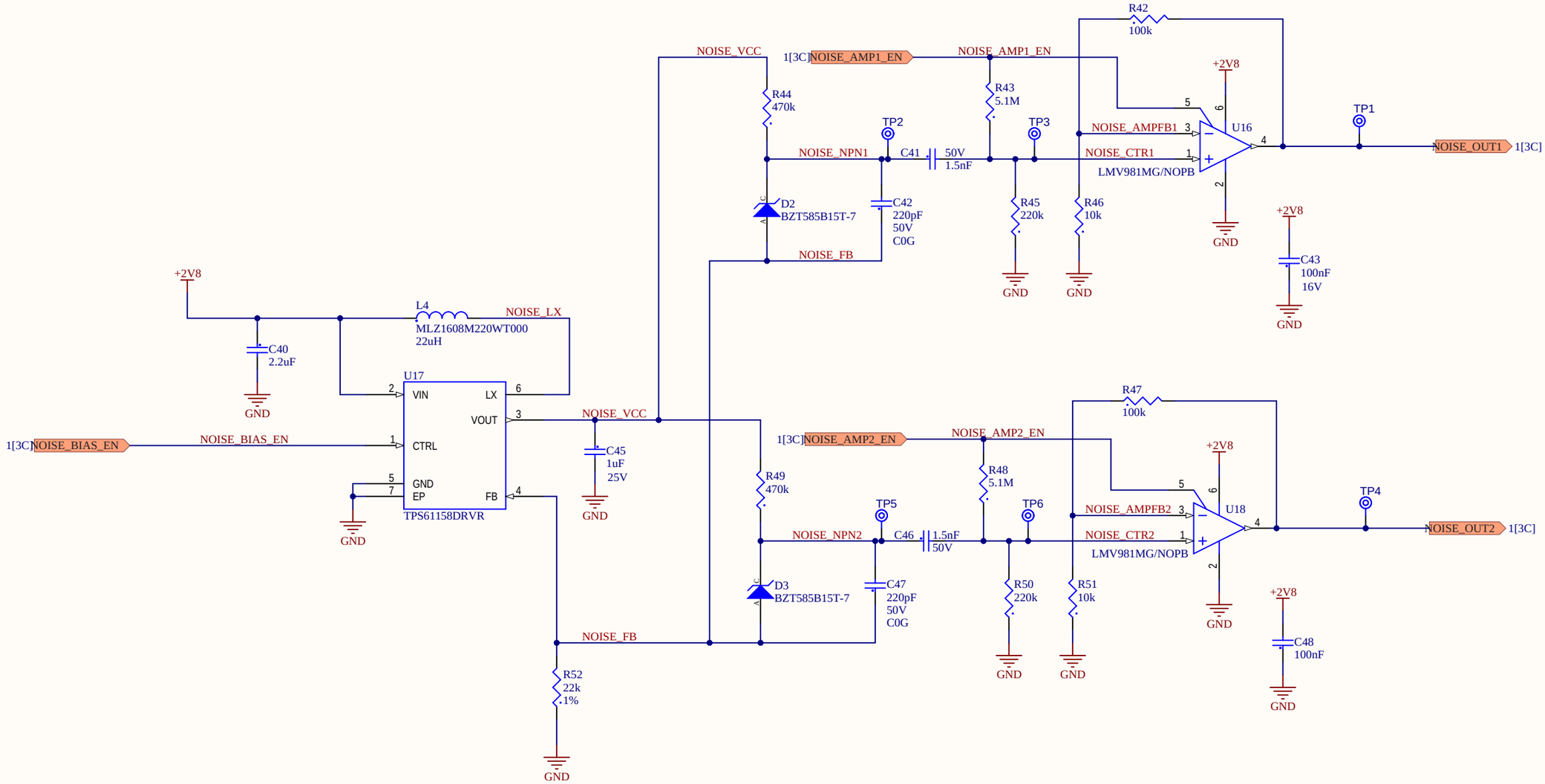
Avalanche Breakdown Noise Source



Circuit designed by:
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FOUNDATION

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